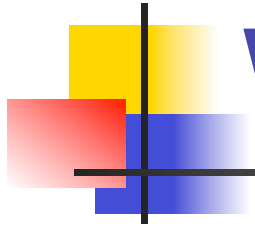


Water Resources Task Force

# Relative Values of the Regional Project Concepts

December 4, 2009



# What Is a Regional Project?

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- A regional project is a project that would satisfy the future public water supply needs for more than one utility
- Regional projects may be shown to provide cost savings to the participating utilities and may be viable



# Where Are the Regions Located in Broward County?

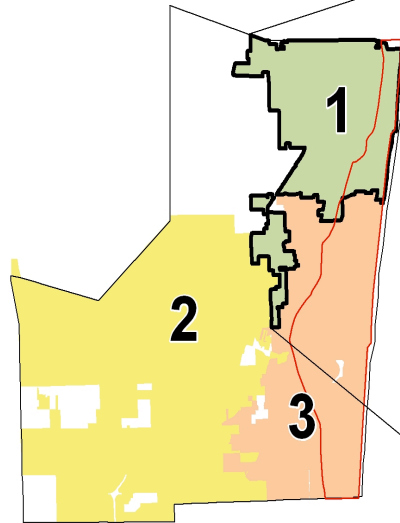
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- Broward County was partitioned into three regions representing the utilities:
- Northeast/Central (Pompano Beach, Broward County 1A and 2A, Deerfield Beach, Coconut Creek, Oakland Park, Margate, Lauderdale Lakes, Hillsboro Beach, Lighthouse Point)
- Southwest/Central (Sunrise, Plantation, Davie, Lauderhill, Pembroke Pines, Miramar, Cooper City)
- Southeast (Fort Lauderdale, Oakland Park, Dania Beach, Hollywood, Hallandale Beach, Broward County 3A/BC)



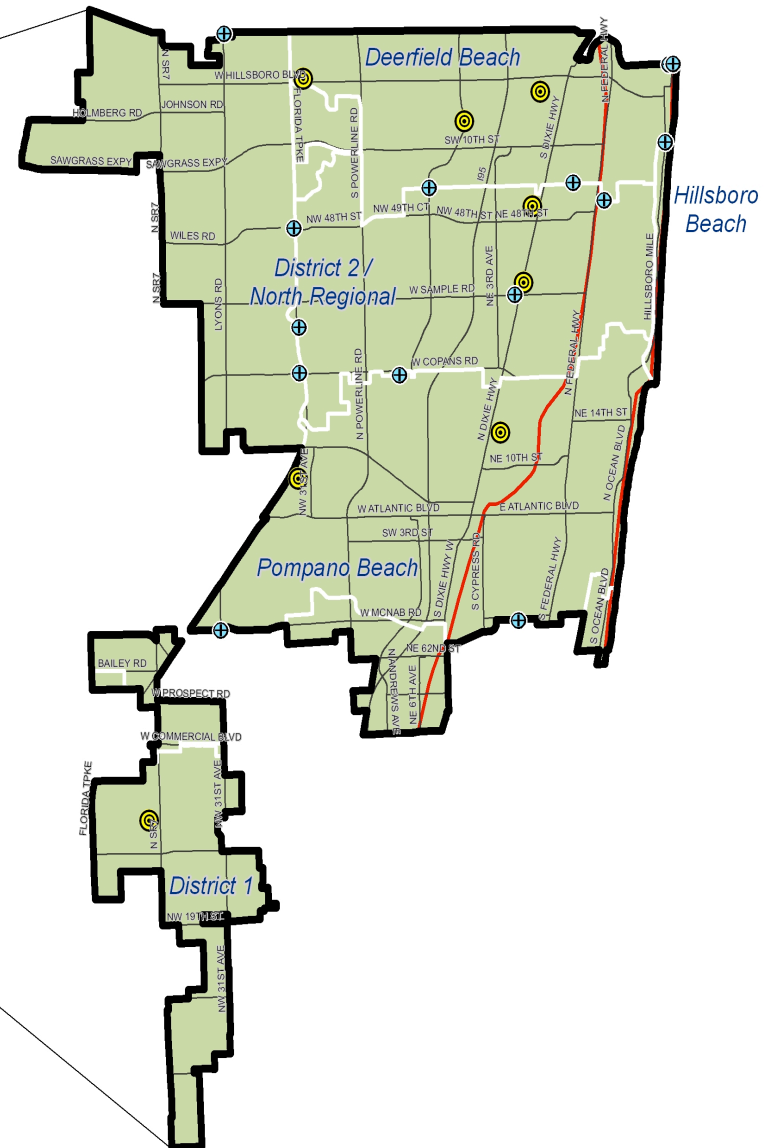
## REGION 1 - Northeast and Central

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November 6, 2009



### Legend

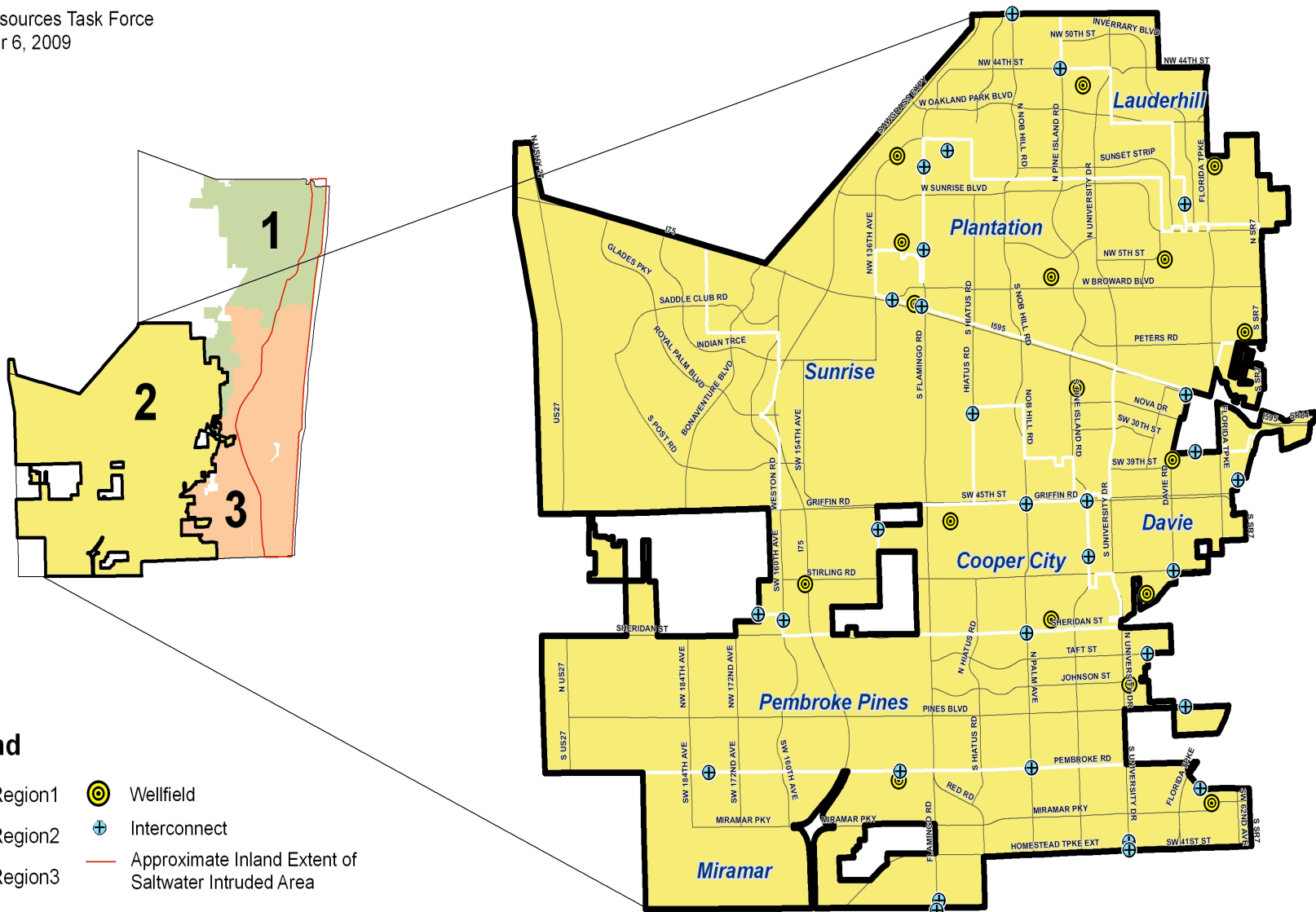
-  Region 1
-  Region 2
-  Region 3
-  Wellfield
-  Interconnect
-  Approximate Inland Extent of Saltwater Intruded Area





## REGION 2 - Southwest and Central

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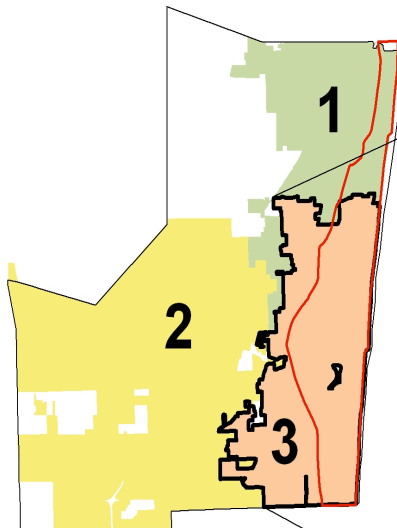


### Legend

- Region1
- Region2
- Region3
- Wellfield
- Interconnect
- Approximate Inland Extent of Saltwater Intruded Area

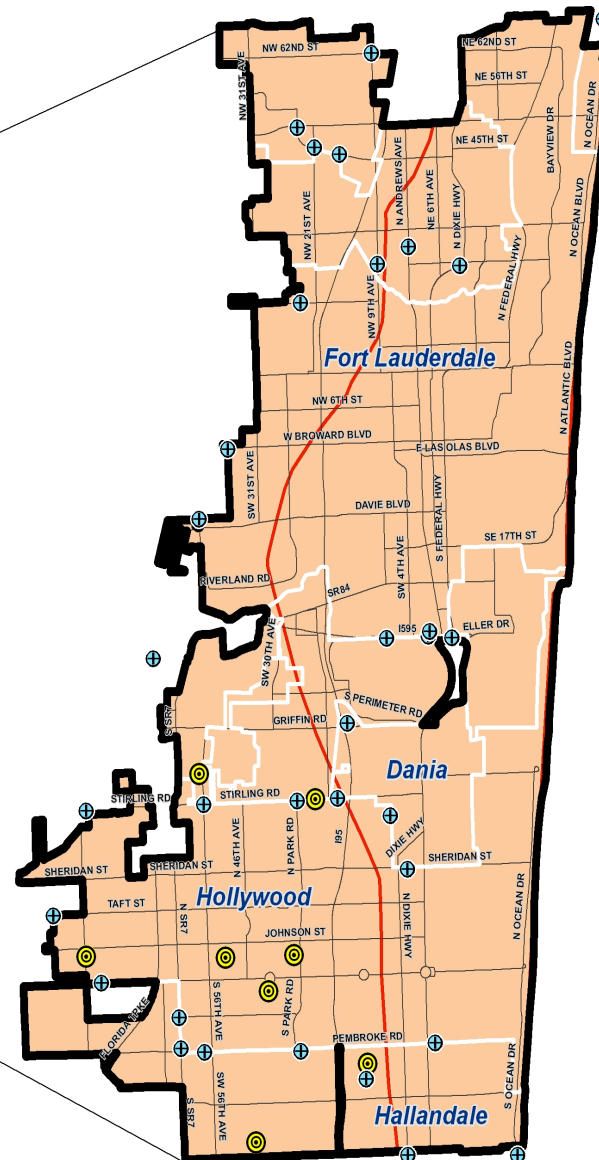
## REGION 3 - Southeast

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November 6, 2009



### Legend

- Region1
- Region2
- Region3
- Wellfield
- Interconnect
- Approximate Inland Extent of Saltwater Intruded Area





# What Types of Projects Were Considered?

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- Conservation and efficiencies were captured first – some utilities are not proposing water supply projects
- C-51 Reservoir in Palm Beach County
- New/expanded reclaimed water for irrigation, groundwater recharge, or canal recharge
- Floridan wells and treatment plant

C-51 Reservoir Project All Regions	Excess stormwater that would otherwise be sent to tide or into deep injection wells would be stored in rock pits in northern Palm Beach County during the wet season and discharged through surface water management systems to wellfields in Palm Beach and Broward Counties during the dry season
Region 1 - Floridan expansion at Fort Lauderdale Peele-Dixie WTP for wholesale to Broward County District 1A	Broward County District 1A purchases finished water for future demands from Fort Lauderdale Floridan System
Region 1 - Floridan expansion at Broward County District 1A WTP for wholesale to Margate/North Lauderdale/Lauderhill and/or Tamarac	City(ies) purchase finished water for future demands from Broward County District 1A Floridan System
Region 1 - Floridan expansion at Deerfield or Pompano WTP for wholesale to Broward County District 2A and transfer of Deerfield Biscayne operations to Broward County District 2A for wholesale to Deerfield	Broward County District 2A purchases finished water for future demands from Deerfield Floridan system and Deerfield purchases finished Biscayne water from Broward County District 2A
Region 1 - Single Floridan WTP to serve both Broward County Districts 1A and 2A	Alternative to building separate plants for each district
Region 1 - Coconut Creek Irrigation - Broward County and Coconut Creek	Broward provides tertiary treated water to Coconut Creek for irrigation



Region 1 – Irrigation and Wellfield Protection - Broward County, Pompano Beach, Deerfield , and Lighthouse Point	Tertiary treated water provided for irrigation to reduce demand on Biscayne Aquifer
Region 1 - Broward County, Pompano Beach, and Deerfield Beach saltwater intrusion protection	Pompano Beach provides ATW to Deerfield Beach for selected sites to create head pressure and push back saltwater intrusion line
Region 1 - Broward County, Coconut Creek, and Margate	Broward County provides tertiary reuse to Coconut Creek and Margate
Region 2 - Park City Floridan WTP	New WTP sized to serve adjacent utilities needs (Davie, Plantation, Cooper City, Sunrise, and/or Lauderhill)
Region 2 - Lauderhill/Sunrise Reuse Facility	Expansion of Sunrise Springtree WWTP to add high level disinfection and reuse distribution system
Region 3 - Regional Water Wholesale Concept (Near Term)	Expansion of existing reverse osmosis plant at the City of Hollywood and wholesale water to nearby communities within Region 3 (Hallandale Beach, Dania Beach, Broward County District 3A and 3BC)
Region 3 - Floridan Aquifer Recharge Concept (2025)	Treat secondary effluent from the Southern Regional WWTP and recharge the Hollywood Floridan Aquifer wells
Region 3 - Biscayne Aquifer Recharge Concept (2025)	Treat secondary effluent from the Southern Regional WWTP and recharge Biscayne Aquifer wellfields (Hollywood and Brian Piccolo) and also look at opportunities to retard the influence of saltwater on eastern wellfields (Dania Beach and Hallandale Beach)



# What Projects Could the Regional Projects Replace?

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- Utilities provided/updated projects to the SFWMD for the 2008 update of the Lower East Coast Water Supply Plan
- Updates were due to SFWMD on November 15, 2009
- Highlights of the larger 2008 projects are shown on the next three slides

<b>Utility</b>	<b>Project</b>	<b>On-line date</b>	<b>MGD</b>
Broward County District 1	Floridan wells and WTP	March 2013	3.8
Broward County 2A/ North Regional	Floridan wells and WTP	April 2013	4.7
Broward County 2A/ North Regional	Reclaimed Water Coconut Creek BC Transmission Main Wiles Rd	2009	2
Broward County 2A/ North Regional	Reclaimed Water Coconut Creek Master Plan	2013-2025	2.8
BC 2A/North Regional and Pompano Beach	Reclaimed Water Pompano Highlands	2013	0.3
Dania Beach	Nanofiltration Facility	December 2011	2
Dania Beach	Biscayne Well I horizontal well	December 2011	un- known
Dania Beach	Rehab Ex Biscayne WTP	December 2011	0
Davie	New Floridan wells and WTP	unknown	6

<b>Utility</b>	<b>Project</b>	<b>On-line date</b>	<b>MGD</b>
Davie	Floridan Addition to South WTP	unknown	6
Deerfield Beach	New Floridan wells and WTP	December 2009	7
Deerfield Beach	Two new Biscayne wells for rotation	February 2010	4
Fort Lauderdale	Dixie Floridan Water Supply/ Treatment Facility	2013	6
Hallandale Beach	Floridan Plant Expansion	Year 6	6
Hollywood	New Floridan wells and treatment	2008-2024	un-known
Lauderhill	New Floridan wells and WTP	2011-2018	4
Margate	WWTP Effluent Reclaimed System	December 2013	1.5
Miramar	Floridan wells and WTP	August 2010	2.88
Miramar	Reclaimed Water Expansion	March 2010	2

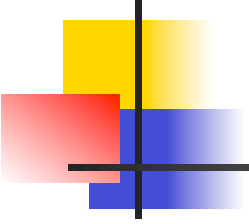
<b>Utility</b>	<b>Project</b>	<b>On-line date</b>	<b>MGD</b>
Pembroke Pines	Highly Treated Reuse/Recharge	Unknown	6
Plantation	Wastewater Effluent Reuse System	2014	1
Pompano Beach	Reclaimed Expansion	2025	8.3
Pompano Beach	Highly Treated Reuse/Recharge	Unknown	TBD
Pompano Beach	Floridan Well	n/a	1.3
BC 2A/North Regional and Pompano Beach	Reclaimed Water Pompano Highlands	2013	0.3
Sunrise	Sawgrass Floridan wells and WTP	2012	4
Sunrise	Park City Floridan wells and WTP	2019	4.8
Sunrise	Southwest Groundwater Recharge	11/19/2012	1.6
Tamarac	Floridan wells and WTP	March 2017	2



# How Were the Scores Determined?

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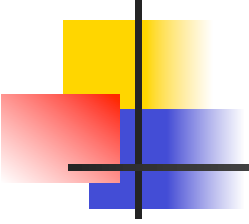
- The Technical Team subcommittee developed and ranked the projects on a scale of 1, 3, or 5 based on the following categories and subcategories:
- Meets multiple objectives
  - Supports ocean outfall legislation
  - Increases potable water supply
  - Preserves/utilizes existing capacity
  - Utilizes stranded capacity
  - Avoids/reduces redundant infrastructure



# How Were the Scores Determined? (cont.)

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- Cost
  - Capital cost
  - Operation and maintenance cost
- Permitability
- Environmental Issues
  - Disposal of by products and residuals
  - Energy demand/carbon footprint

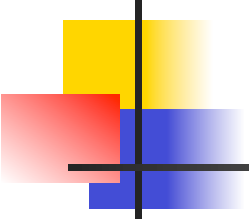


# How Were the Scores Determined? (cont.)

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- Stakeholder and Public Acceptance
- Technology
  - Delivery/conveyance
  - Certainty/reliability of water quality and quantity
  - Component compatibility
- Outside funding opportunities





# How Were the Scores Determined? (cont.)

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- The scores for the first category, “Meets Multiple Objectives” were averaged to produce a single score for the category
- This score was added to the remaining scores, and an average was determined



# What Are Some of the More Favorable Projects?

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- C-51 Reservoir Project
- Reuse for Irrigation in Region 1 (Broward County Districts 1A and 2A, Pompano Beach, Coconut Creek, Deerfield Beach, Oakland Park, Lauderdale Lakes, Lighthouse Point, Margate)
- Reuse for Irrigation in Region 2 (Lauderhill, Sunrise)
- Expansion of RO plant in Region 3 (Hollywood, Dania Beach, Hallandale Beach, Broward County District 3)

<b>Region/Project/Description</b>	<b>Value</b>
All Regions - C-51 Reservoir Project - Excess stormwater that would otherwise be sent to tide or into deep injection wells would be stored in rock pits in northern Palm Beach County during the wet season and discharged through surface water management systems to wellfields in Palm Beach and Broward Counties during the dry season	42
Region 1 - Coconut Creek Irrigation - Broward County and Coconut Creek - Broward provides tertiary treated water to Coconut Creek for irrigation	42
Region 1 - Irrigation and Wellfield Protection - Broward County, Pompano Beach, Deerfield and Lighthouse Point - Tertiary treated water provided for irrigation to reduce demand on Biscayne Aquifer	42
Region 1 - Broward County, Coconut Creek and Margate - Broward provides tertiary reuse to Coconut Creek and Margate	39
Region 2 - Lauderdale/Sunrise Reuse Facility - Expansion of Sunrise Springtree WWTP to add HLD and reuse distribution system	39
Region 3 - Regional Water Wholesale Concept (Near Term) - Expansion of existing reverse osmosis plant at the City of Hollywood and wholesale water to nearby communities within Region 3 (Hallandale Beach, Dania Beach, Broward County District 3)	39

# Discussion